Authored by Jason Peterson
Chief Executive Officer, ContentBridge Systems

THE MECHANICS OF LAUNCHING A CONSUMER VIDEO OFFER "OVER THE TOP"

TABLE OF CONTENTS

INTRODUCTION

What may seem to be a simple process—getting access to video content and delivering it to consumers—is actually pretty complex and complicated. This primer explains the workflow for a successful launch. Care should be taken to acquire the right expertise for each step in the chain as integrating all parts of the process is a complex undertaking and there are multiple points of failure in an OTT offer.

THE FIRST STEP - DEFINING YOUR OTT OFFERING

The first step in deploying a successful OTT solution to the consumer is defining it. We need to ask the following questions:

1. Who are the customer segments?
2. How large are they—*i.e.*, how many users are we expecting to serve and on what timetable?
3. What type of experience do we want to provide the consumer?
    a. What are our customer relationships:
        i. How do we deliver the service?
        ii. How do we support the service?
4. What are the value propositions to the consumer?
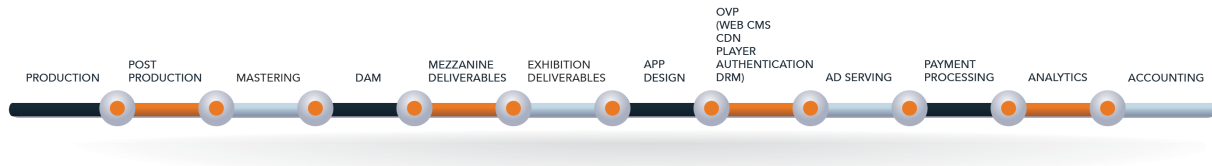5. What are the revenue structures?
6. What are the cost structures?

Based on the responses you can begin to frame up the picture of what the OTT offer will look like.

Let's assume for the purpose of this white paper that we are going to launch an OTT offer with the following characteristics:

1. **Customer Segments**: Targeting Spanish speakers in Hispanic cultures globally (US, Spain, Mexico, Central & South America, etc.)
2. **Number of Expected Users**: Up to one million per day and 100,000 concurrent.
3. **Type of Experience**: We want to provide a hybrid linear/on-demand experience across all major platforms: web browser, Android, iOS, and ultimately connected devices like PlayStation, Roku, Samsung TVs, Xbox, etc. However, we are willing to triage and prioritize those platforms with the greatest consumer adoption first.
4. **The Value Proposition**: High-quality music video and related content under a freemium model.
5. **The Revenue Structures**: Will include an openly available free area within a web browser delivering video in standard definition with an upsell to a paid subscription to access the service on a connected device in high definition.
6. **Cost Structures**: Will largely depend on the tools chosen, but could be comprised of capital expenses and/or operational expenses depending on these decisions. The goal is to start up with the least amount of sunk cost possible and to keep the marginal cost of serving each customer well below marginal revenue.

THE STEPS TO DEPLOYING THE OTT SERVICE

To deploy a consumer-centric video based offer over the top (OTT) the distribution tool chain includes the following:

PRODUCTION · POST PRODUCTION · MASTERING · DAM · MEZZANINE DELIVERABLES · EXHIBITION DELIVERABLES · APP DESIGN · OVP (WEB CMS CDN PLAYER AUTHENTICATION DRM) · AD SERVING · PAYMENT PROCESSING · ANALYTICS · ACCOUNTING

In order to set up this OTT offer, we need to initiate two concurrent workflows:

1. Media licensing and on-boarding
2. Platform infrastructure design, development, and deployment

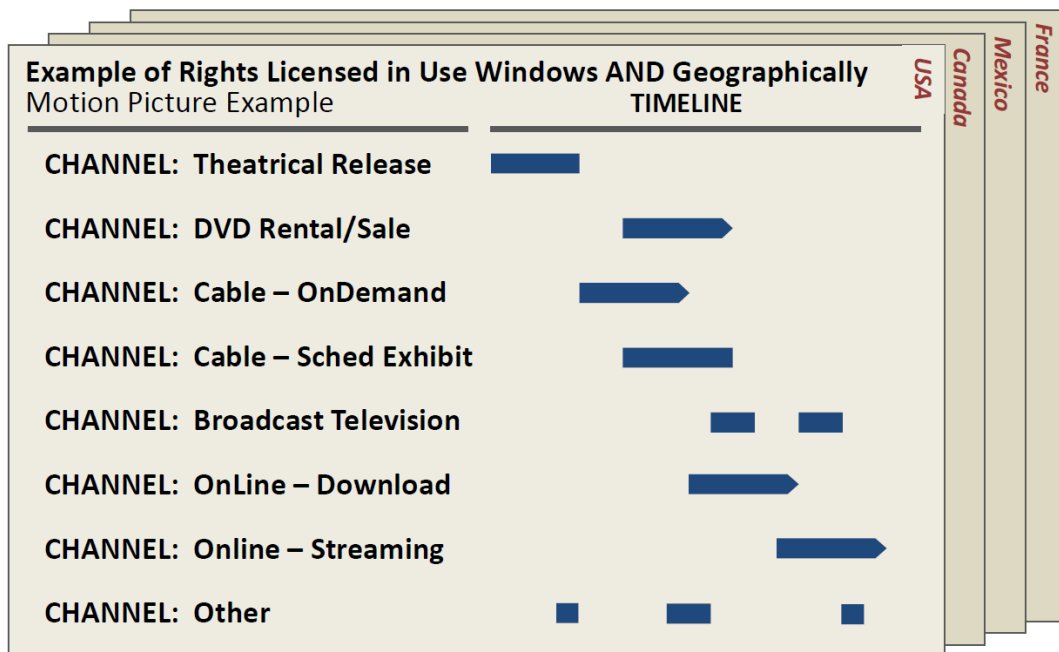## MEDIA LICENSING AND ON-BOARDING

On-Boarding includes all the back-end steps of obtaining, tracking, and preparing content for distribution to the consumer. The functions included in on-boarding include "Rights Licensing," "Digital Asset Management," and "Obtaining/Converting Mezzanine Files."

1. **Rights Licensing:** Once content is either internally produced or licensed and mastered, the rights licensed "in" should be recorded in a rights management system, ideally one that can read the Entertainment Merchants Association's Content Availability Metadata (EMA Avails) format.[1]

   Studios and distributors build windows for their content that match price to consumer utility to optimize the amount of revenue they can earn. Any online video service that violates the windows will most certainly face litigation. These rights need to be enforced through the retailer's tools; otherwise a breach of contract suit may ensue from the supplier. (For example, if we have the right to exhibit *The Hunger Games* in 2015 but not in 2016 and then again in 2017 to consumers located in the United States, then we had better not stream the movie either to a consumer in the US on January 5, 2016, or anywhere else in the world anytime.)

---

[1] Available at http://www.entmerch.org/digitalema/committeescouncils/avails-work-group/index.html.

Enable Maximum Licensing and Assure Minimum Conflicts & Violations

Some capable rights managers are:

- CounterPoint Systems
- FilmTrack
- MediaMorph
- Rightsline

2. **Digital Asset Management**: Once the rights are acquired and recorded, we need to actually receive the master or mezzanine elements for each title licensed. Ideally, we have a system of record to store, backup, and archive these "master asset packages" because they are the highest level/highest quality deliverables we will receive from our suppliers and we will use them time and time again to make downstream deliverables as exhibition technology evolves.

These content "packages" are likely to be received as part of "media manifests" [2] containing component based media elements in a master asset package format like the Interchangeable Master Format (IMF)[3]. The media manifest is an XML-based container structure that allows for multiple versions such as edits, aspect ratios, and localized

---

[2] The Media Manifest Core Delivery is an XML-based package container developed by EMA and MovieLabs that is being adopted by some major digital retailers. Available at http://www.entmerch.org/digitalema/committeescouncils/media-manifest-workgroup.html.

[3] IMF is a mastering format for the components of a motion picture developed by the Society of Motion Picture and Television Engineers.

versions to be stored, related to each other, and updated as new versions come available. Metadata can be stored utilizing the DEG/Entertainment Merchants Association Media Entertainment Core Metadata standard, a standard being requested by larger retailers today.[4] (However, some content providers may opt to control the production of deliverables themselves to maintain "control of the consumer experience." The jury is still out on where the industry is going on this.)

There are a few providers of out-of-the-box digital asset management systems for both global film and TV. There are many media asset management systems for television, but they are typically light on metadata, and there are a few service providers with custom solutions.

Here is a partial list:

- Movies
    - ContentBridge
    - OpenText (Artesia)
- Television
    - ContentBridge
    - Dassault
    - Evertz Mediator
    - Omneon
    - Imagine Communications (Harris & Grass Valley)
    - Many others….

3. **Mezzanine Deliverables:** Mezzanine and downstream exhibition deliverables are comprised of encoded video and audio files, closed captions, subtitles, artwork, and local language metadata. We have an opportunity to either "build" a system to transcode mezzanine files for distribution to consumers, or we can outsource this function to a post-production and "buy" files as needed or we can use one of the emerging Programmatic Content Distribution software-as-a-service vendors in the cloud.

Build: If we are going to take ownership of an IMF package or another master or mezzanine-level deliverable, we would manage the mezzanine files via in-house digital asset management and then hire an operations team and use a third-party system in-house to transcode and package them for distribution to the consumer. The upfront cost for the software will be higher, and a team must be employed; however, the

---

[4] Available at http://www.entmerch.org/digitalema/committeescouncils/media-ent-core-md/index.html.

marginal per unit cost should be much lower. Another option is to use the "software-as-a-service," which may be viable depending on volume requirements.

Buy: There are many post production providers who can manage the logistics of sourcing master asset packages from content providers and produce the required downstream deliverables for distribution to the consumer. This option requires little to no upfront investment and carrying cost, but the per-piece rate will be two to ten times higher than an in-house solution at scale. Programmatic content distribution solutions can achieve similar results for a fraction of the cost and cycle time.

Some well-known providers are:

- 2G Digital
- ContentBridge (programmatic content distribution software)
- Deluxe
- Mojo (formerly Inception Digital Services)
- NEP (formerly Consolidated Media Industries) (Europe)
- Premiere Digital Services
- Prime Focus (India)
- Radius 60
- Sony DADC
- Visual Data Media Services

PLATFORM DESIGN, DEVELOPMENT, AND DEPLOYMENT

Designing, developing deploying the consumer-facing functions including the User Interface/App, Online Video Provisioning, Monetizing, Analytics, and Accounting is of paramount importance.

1. **User Interface/App Design**: The first step is to design the user experience and then to execute it through a generally accepted software development lifecycle (SDLC). [SDLC best practices are beyond the scope of this article.]

2. **Online Video Provisioning**: Once we've designed the user experience, during the development of the application we would determine how content will be provisioned to the consumer.

   Self-Developed: One option is to design and develop our own end-to-end solution using either owned or operated hardware. Building an end-to-end solution from scratch inclusive of operating your own data-center(s) can be a massive proposition that is only relevant for the largest participants in the space. If you're a major studio, then it might

make sense to be entirely vertically integrated and own the entire stack. However, the risk of pursuing such a strategy is that any component in the chain might fail to meet the necessary business requirements and/or costs and schedules may overrun. (This has been partially the case with one of the major telecom providers, who has been attempting to build the entire stack. They are more than $500 million into building and buying the components and years over schedule. It will eventually work, but at what cost?)

Leased Hardware in a Third-Party Cloud: For the purpose of this example, we will assume we're going to integrate best-of-breed providers and components into a solution in the cloud.

The first step is to select an online video provider (OVP) to provide the video player, the back end content and supplier rights management system, user authentication, and digital rights management for security. We will be supporting up to one million daily users from around the globe with up to 100,000 concurrent streams. In order for the offer to have a compelling user experience, latency for the user must be very low; no user wants to wait for pages or videos to load. In order to deliver a low-latency experience, a content delivery network (CDN) should be utilized to cache content that is most popular in a region at the edge of the network so it is the least number of network hops away from the user. When selecting an OVP they will likely be able to offer you resale of CDN services.

Common OVPs Include:

- Brightcove
- Kaltura
- MLB Advanced Media Ooyala
- Platform Purple
- ThePlatform
- Vimeo

Additionally, the content managed in the CMS needs to be stored in an available place. Storage costs are a major cost center to be considered.

The architecture of the Cloud is such that there are infrastructure-as-a-service providers (IaaS), which are traditionally the large networking and software companies. These IaaS companies invest billions in large warehouses full of computer hardware connected by way of fiber optic cables to internet backbone providers like Level 3, MCI, Worldcom, and the well-known telecoms.

If you have first selected an OVP, they will advise you on which IaaS providers they support. Increasingly IaaS providers are courting those companies who provide the application stack that runs on their infrastructure. This is because infrastructure is largely a commodity business. However, it is the software that is a differentiator.

Common Cloud IaaS Providers

- Akamai
- Amazon
- Google
- IBM
- Microsoft

Once we have selected an OVP and an IaaS provider for storage, processing, database, and transport with a CDN for edge caching and low-latency delivery, it's time to start thinking about monetization.

3. **Monetization**: There are four predominant business models in media: purchase (EST), rental (T-VOD), subscription (S-VOD), and advertising supported (A-VOD).[5] In this example we are going after what is called a "freemium" model, which is a combination of free to use and subscription, anticipating that we will convert users into paying customers, because it allows for discussion of both transactional business models (EST and T-VOD) and A-VOD.

First we will need a user credentialing and authentication engine provided by the OVP that integrates into a payment processing gateway to process subscription payments via commonly available methods such as credit cards, Android Pay, Apple Pay, PayPal, etc. If the OVP doesn't provide this piece you will need to source a separate vendor and integrate their payment system's backend via its API into the OVP's authentication engine.

Vendors for payment processing include:

- Most major merchant banks as well as,
- Paypal.com
- Processing.com
- Square.com

---

[5] For a discussion of these business models, see "Defining Over-the-Top (OTT) Digital Distribution," available at http://www.entmerch.org/digitalema/white-papers/defining-digital-distributi.pdf.

Our Freemium offer will also include advertising under both the free-to-use and pay-to-use areas of the service – similar to cable TV. Advertising monetization can be tricky. In most cases, when you load a web page the substantive content comes from the CDN and the advertisement(s) load in a separate area called an "i-frame" that is served by an "ad server," which is a separate CDN for advertising with a decision engine behind it deciding which advertisement to serve which consumer at any given opportunity. Advertising on the internet is dynamic and programmatic. The goal is to serve the most relevant advertisement to each consumer to maximize the performance of the ad for the buyer and make the experience as helpful and relevant as possible to the viewer. Common ad-servers are:

- Atlas (formerly Microsoft, now Facebook)
- DoubleClick (Google)
- Smart AdServer

The ad server performs two functions: (1) deciding which ad to serve; and (2) delivering it into the i-frame or video player. There are standards describing how the website interacts with the ad-server developed and implemented by the Internet Advertising Bureau. The current standards are VAST and VPAID and describe different levels of integration and flexibility.

Here are three common ad units:
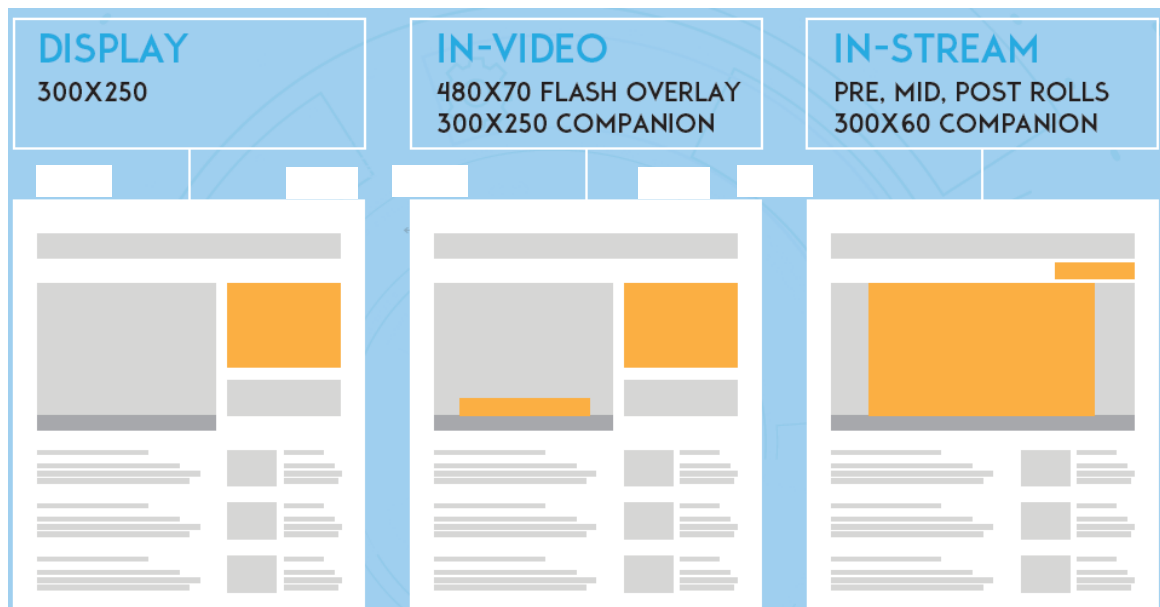
Think of optimizing the mix of advertising as a pyramid function:
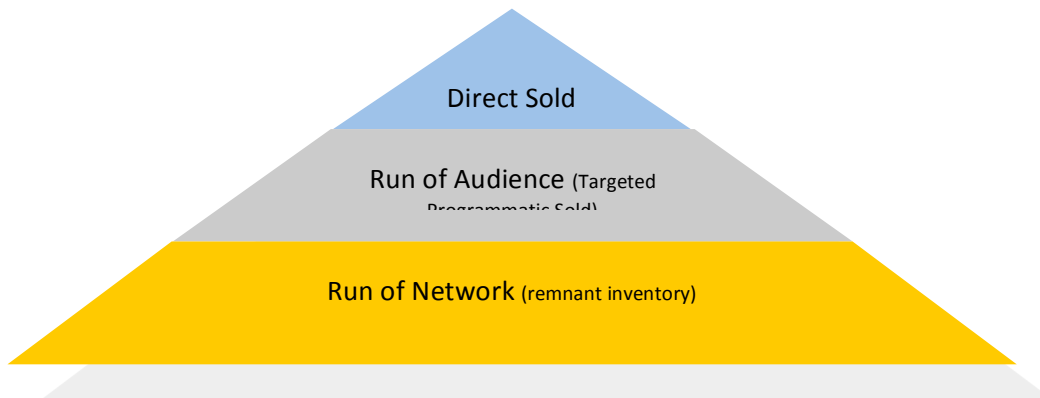
- o Direct Pre-Sold
- o Targeted Programmatic Sold
- o Remnant Run of Network Sold

Prior to the ad-server in the tool chain for advertising lies a supply side platform, one or more ad exchanges and many demand side platforms. Below is a graphic that summarizes the many-to-many relationships in programmatic advertising.
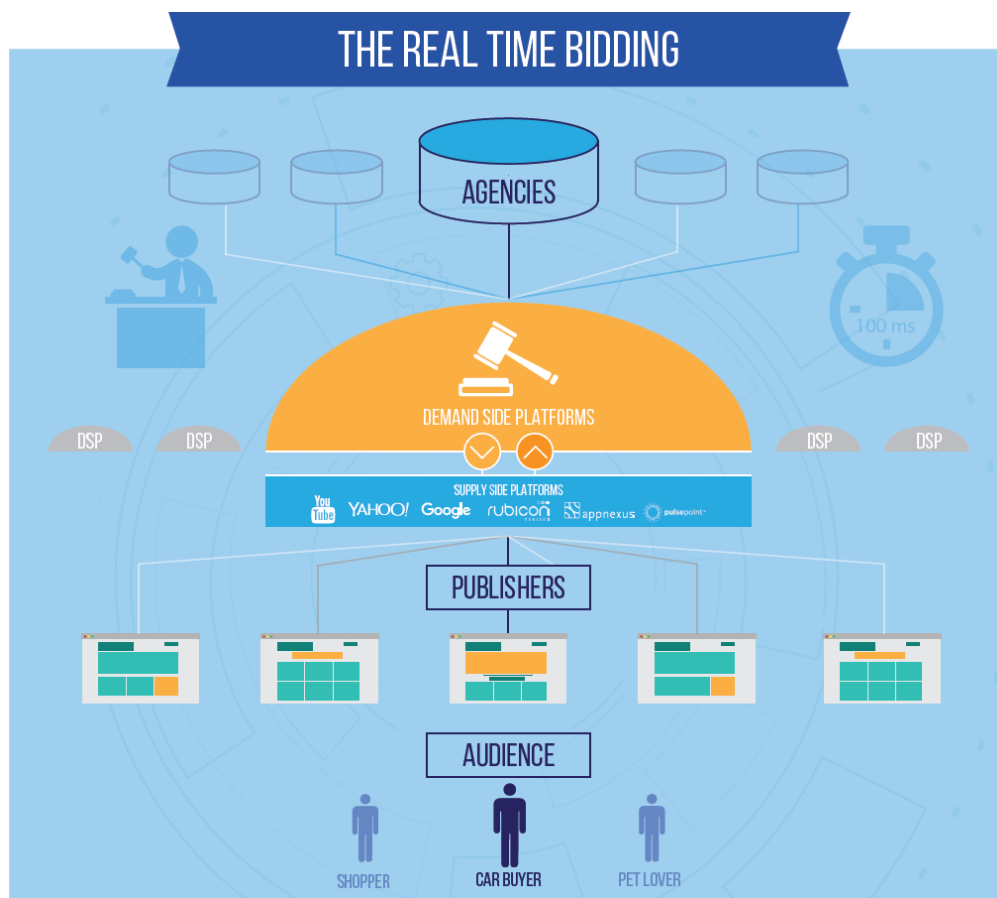
These programmatic buying and selling tools live concurrently with manual insertion orders that can be inserted into the ad-server to pre-empt or live concurrently with inventory being purchased programmatically. An example of this would be if we sold all of our home page inventory at an upfront to a single advertiser for a three-month period; we would insert that order manually into the ad server and it would pre-empt the ad exchange inventory.

Pricing is usually developed based on a matrix of criteria including targeting data and pre-emption (some advertisers want 100% share of voice, for example).

4. **Analytics**: Being able to identify, track, and optimize consumer behavior is key to concerting and keeping customers. Churn will kill a business like the one we're building here. The OVP CMS will come with some analytics capabilities such as information on what content is popular in certain regions of the world. However, we will want to optimize the customer acquisition funnel on the one hand and the user experience on the other.

    For optimizing the sales funnel we will want to do our best to establish a causal relationship between demand generation activities and customer conversions. We will then want to monitor sources of traffic, costs per acquisition, service stickiness, and churn. The goal is to make the service sticky and viral such that most traffic and conversions come from organic non-paid sources and convert to paying customers at a good rate. There are many services that can help with this:

    - Google Analytics
    - Hootsuite

    For optimizing user experience for acquisition and stickiness, we will continually A/B test different user interface configurations across our many different devices. This is part of the SDLC best practices. We will want to use a service that allows us to do this. There are several available.

5. **Accounting**: This is the process of distilling revenue data into royalty statements for your content providers.

    When dealing with advertising, accounting can be complex. Ideally we can create a unique identifying number chain that ties the AdID from the ad server to the EIDR for the content around which the advertisement was served and then report the results in a standardized formula such as the DEG standard. If we can do this then we can also offer content specific advertising inventory to buyers that can increase our revenue. Several

companies can help with this, although it most certainly is a systems integration project. Here are few who are well known:

- Counterpoint Systems
- FilmTrack
- MediaMorph

When dealing with transactional data such as subscriptions, the math is much simpler. There needs to be a contractually defined method in place with the content suppliers for how they are compensated, whether it is using a revenue pooling approach or a per stream royalty or otherwise. This data needs to be recorded in the CMS database and can easily be manipulated.

CONCLUSION

Building and deploying an OTT network is a complex project that requires careful planning and execution. Maintaining, upgrading, and planning for delivery at scale are all additional areas to consider. Luckily there are companies such as those illustrated within this whitepaper that can help handle the complexity.